Call for Papers:

IEEE Open Journal of Control Systems (OJ-CSYS)

Special Section on Safe Motion Planning and Control for Autonomous Driving Under Multi-Source Uncertainty

With the widespread attention in both academia and industry regarding autonomous driving, ensuring safety in its autonomous planning and control has become an urgent task. Currently, the implementation framework of autonomous driving primarily involves the planner generating a "collision-free trajectory," which is then handed over to the control layer for tracking. However, real-world predictions and vehicle dynamics are typically fraught with various uncertainties (i.e., the intentions and trajectories of other vehicles, vehicle steering system hysteresis, etc.), especially in scenarios involving high-speed vehicle maneuvering behavior. These uncertainties can undermine safety planning validated by nominal model verification, rendering the control trajectory no longer safe. While it seems that the vast majority of machine learning methods struggle to provide safety assurances for planning and control, some trustworthy ideas for machine learning-based safety planning and control have begun to emerge.

Authors are encouraged to focus on the uncertainties encountered in real-world scenarios, with a focus on developing algorithms capable of explicitly reasoning uncertainty propagation and achieving autonomous driving planning and control with strong robustness. This special section advocates for researchers to attentively address the multifaceted challenges inherent in the domain of autonomous driving planning and control in order to provide apt solutions.

Prospective authors are invited to submit original contributions on related topics including, but not limited to, the following:

- Robust trajectory planning of autonomous driving
- Robust trajectory tracking control of autonomous driving
- Safety-critical critical decision-making and control of autonomous driving
- Robust and resilient autonomous vehicle control subject to sensor failure or attack
- Machine learning for trajectory prediction
- Statistical methods for quantifying uncertain predictions
- Human-centered AI technology for autonomous driving control
- Platoon control subject to various heterogeneity
- Application of game theory in the human-vehicle interaction system
- Cooperative control between human-driven (or human-operated) vehicles and autonomous vehicles

Special Section Schedule:

- **Special Section Submission Window: 28 February 2025 – 31 August 2025**
- Notification of reviews and recommendations: 10 weeks after initial submission
- Final notification of regular papers: 20 weeks after initial submission
- Manuscript publication on IEEE Xplore: 24 weeks after initial submission

* Review process starts at time of manuscript submission

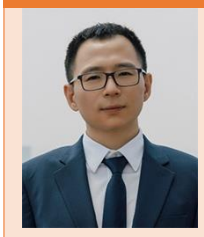
Submission Site: https://css.paperplaza.net/
Length: 10-15 pages, not including references. Justification of longer papers is required.

Open Journal of Control Systems (OJ-CSYS) *covers significant theoretical and applied developments that impact the field of dynamic systems and control. The field integrates elements of sensing, communication, decision and actuation components as relevant for the analysis, design and operation of dynamic systems and control. The systems considered include: technological, physical, biological, economic, organizational and other entities, and combinations thereof.*

Guest Senior Editor

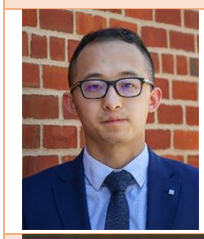
Name: **Peter Seiler**
Affiliation: **University of Michigan, United States**

Guest Associate Editors



Name: **Zejiang Wang**
Affiliation: **University of Texas at Dallas, United States**

Name: **Yuanqiu Mo**
Affiliation: **Southeast University, China**



Name: **Mingyu Cai**
Affiliation: **University of California Riverside, United States**

Name: **Fei Miao**
Affiliation: **University of Connecticut, United States**

Name: **Vaibhav Srivastava**
Affiliation: **Michigan State University, United States**

Name: **Cameron Nowzari**
Affiliation: **George Mason University, United States**

Name: **Jinhao Liang**
Affiliation: **National University of Singapore, Singapore**

Name: **Guodong Yin**
Affiliation: **Southeast University, China**

Name: **Luigi Iannelli**
Affiliation: **University of Sannio, Italy**